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FINAL REPORT:

The research was directed to initiate a study of large-scale hereditary/non-hereditary control and distributed computing systems under randomly varying structural perturbations.

Three principal areas of research, namely

- (1) Error estimation between the stochastic and corresponding deterministic systems.
- (ii) Numerical Methods in Random Differential Equations,
- (iii) Diagonalization and Stability of Singularly Perturbed Stochastic integro-differential equations are investigated.

The findings and reports under this study resulted in the following list of publications.

1. Title: Periodic Boundary Value Problems for Second Order Impulsive
Integro Differential Equations of Volterra-Type
Authors: G. S. Ladde, S. Sathananthan, and M. V. Moorthy.
Journal: To appear in *Proceedings of the Dynamic Systems and Applications*.

2. **Title:** Numerical Treatment of Random Differential Equations
 Authors: G. S. Ladde, S. Sathananthan, and R. Pirapakaran
 Journal: To appear in the *Proceedings of the 11th Army Conference in Applied Mathematics and Computing*.

3. **Title:** Stability and Error Estimates of Stochastic Integro-Differential Equations.
 Authors: G. S. Ladde and S. Sathananthan
 Journal: To appear in the *Proceedings of the 11th Army Conference in Applied Mathematics and Computing*.

4. **Title:** Diagonalization and Stability of Two-Time Scale Singularly Perturbed Linear Integro-Differential System
 Authors: G. S. Ladde, and S. Sathananthan
 Journal: To appear in the *Proceedings of the 11th Army Conference in Applied Mathematics and Computing*.